SPAWAR Systems Center San Diego
TEAM SPAWAR Chief Technology Officer
"Leadership and Innovation"

SPAWAR S&T OPPORTUNITIES

17 Apr 2008
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Code 73
(619) 553-2010
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S & T OPPORTUNITIES

- **Industry and Government Teaming**
  - **CCAT (Center for Commercialization of Advanced Technologies)** Commercialization of emerging technologies (private and government) / Stephen Lieberman, stephen.lieberman (553-2778); http://www.ccatsandiego.org/
  - **CRADAS (Cooperative Research & Development Agreement)** Means to perform research with industry Stephen Lieberman, stephen.lieberman (553-2778); Roger Boss, roger.boss (553-1606)
  - **Commercial Sales Agreement (U.S. Code 2539B) and Work for Private Parties (U.S. Code 2563)** Laws & policies to increase private sector access to defense-unique capabilities Raj Samuel, raj.samuel (767-4156)
  - **SBIR (Small Business Innovation Research)** Contracts awarded to small businesses for innovative research through congressionally mandated federal program. Steve Stewart, steve.stewart (553-2546)
  - **MP (Mentor Protégé)** Small business partnering with large companies in developing innovative technologies Cliff Hudson, cliff.hudson (553-7442)

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S & T OPPORTUNITIES (cont)

- **CTO Services for Transition, Technology Strategies, and Forecasting**
  - **ILIR (In-House Laboratory Independent Research)** Internal discretionary 6.1 funds from ONR emphasizing basic research / Roger Boss, roger.boss (x31606) https://donst.nrl.navy.mil/cgi-bin/login-form.cgi
  - **IAR (Independent Applied Research)** Internal discretionary 6.2 funds from ONR emphasizing revitalization and transition / Roger Boss, (x31606) https://donst.nrl.navy.mil/cgi-bin/login-form.cgi
  - **S&T Capabilities Initiative** Internal G&A funding emphasizing 6.2-6.3 transitions / Roger Boss, roger.boss (x31606)
  - **S&T Challenges** Internal funding used to support for about 5 yrs a team of researchers building a 6.1-6.3 S&T capability vital to the Center's mission / Eric Hendricks, eric.hendricks (x31624) / Roger Boss, roger.boss (x31606)

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Outline

- **What is T2**
- **Why do we do T2**
- **How do we do T2**
- **What's in it for you? for the Navy?**

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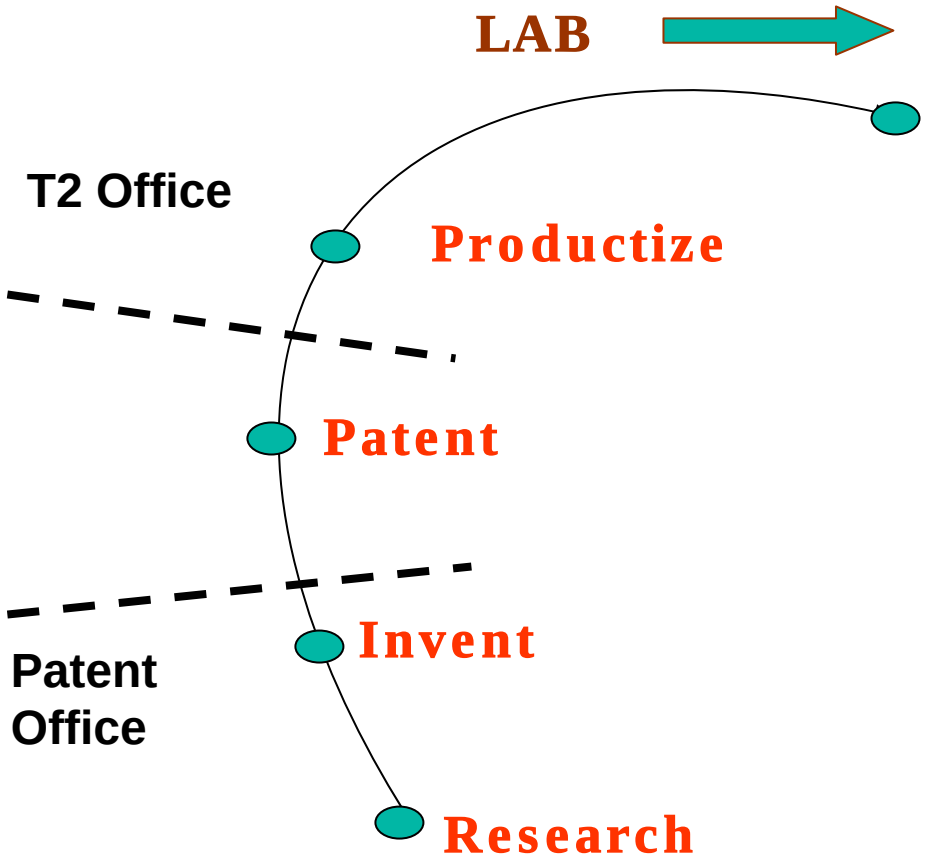
What is T2



- New Products (Features)
- New Services
- New Businesses

Adapted from Ricardo dos Santos, Sr. Director of New Business Development, Qualcomm, Inc.

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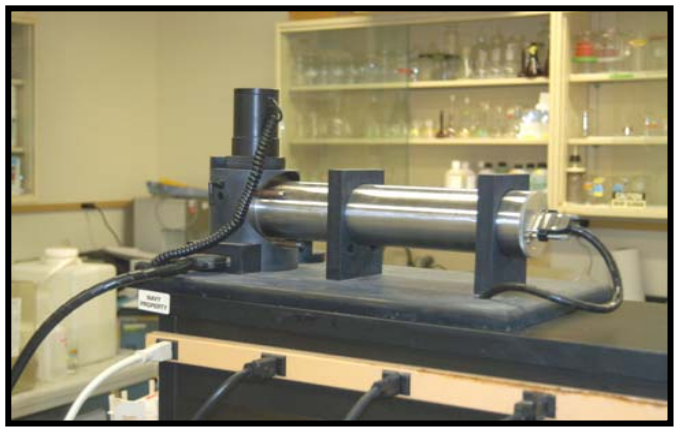
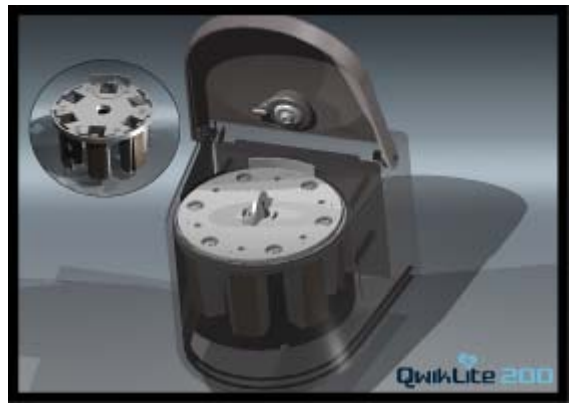
Lab to Market
Example: QwikLite Technology





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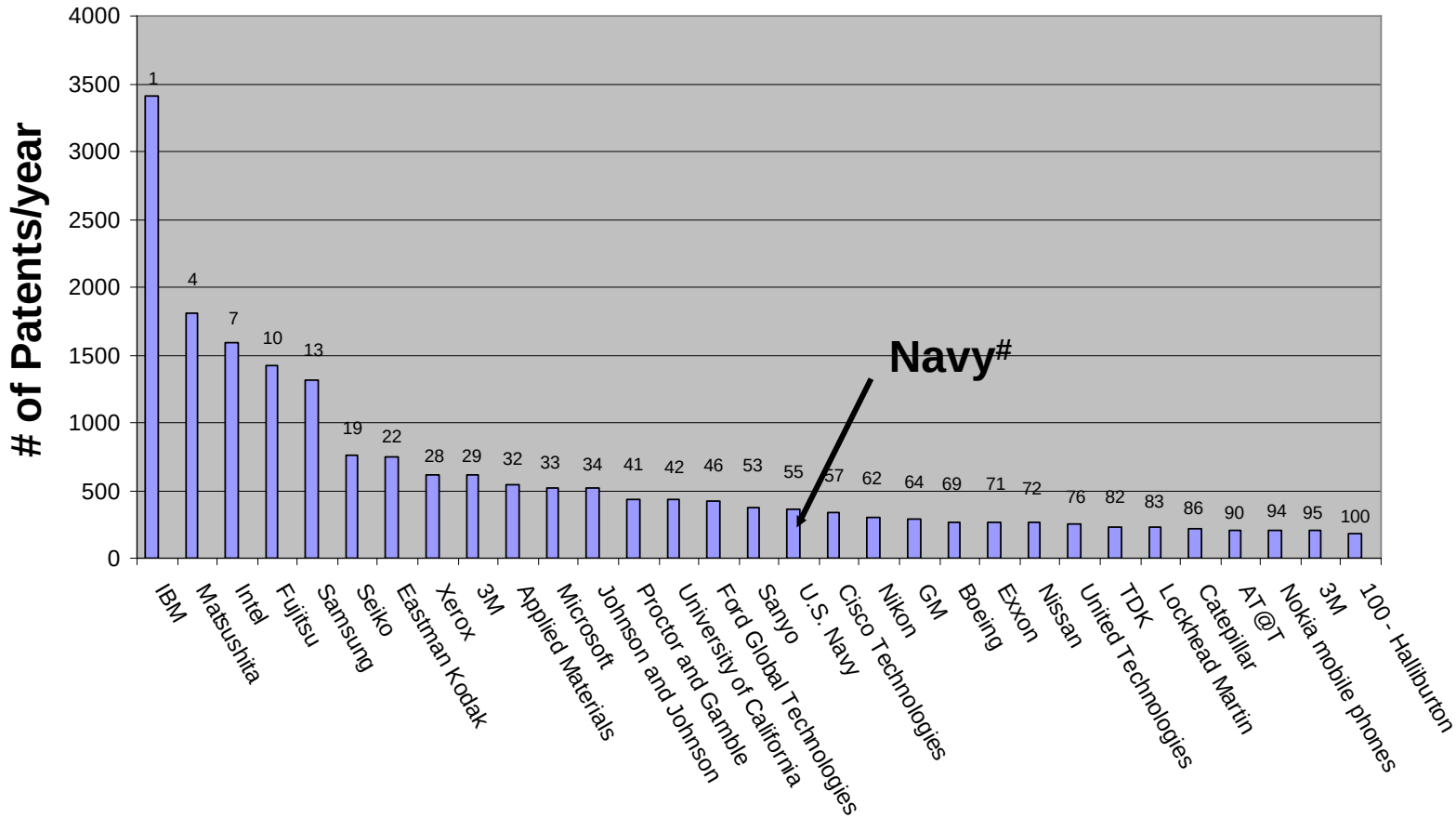
Background
Top 100 USPTO Patent Recipients

Navy averaged 59th out of top 100 Patent Recipients for years 2001-2006



#Chart shows data for 2003

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Background

SSC San Diego vs. San Diego Based Companies

SSC San Diego ranked 5th compared to San Diego based corporate patent recipients in 2006

Rank/Company	Number of Patents
1. Qualcomm	200
2. Kyocera Wireless	32
3. Applied Micro Circuits Corp.	30
4. Science Applications Int.	24
5. SSC San Diego	21
6. Agouron Pharmaceuticals	19
7. Cymer	18
8. Genral Atomics	14
9. Gen-Probe	14
10. Diversa	11
11. Amylin Pharmaceuticals	9

Data from San Diego Union, 25 Jan 2006 -- SSC SD data added. (Does not include data from local Universities)

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Why do T2

- Facilitate the transfer of SSC San Diego innovations for the benefit of public and warfighter
- Enhance the research experience of SSC San Diego scientists and engineers through technology transfer
- Promote economic development by leveraging SSC San Diego innovations
- Provide financial incentives to SSC San Diego scientists and engineers to stimulate technological innovations

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How: T2 Vehicles

- Patent License Agreements (PLAs)
- Cooperative Research and Development Agreements (CRADAs)

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Licensing
Guiding Principles

- **Benefit the public and the warfighter.**
- **Licensee should be capable of bringing the invention to the marketplace.**
- **Timely development, marketing, and deployment of the invention.**
- **Fair consideration in exchange for the grant of commercial licensing rights.**

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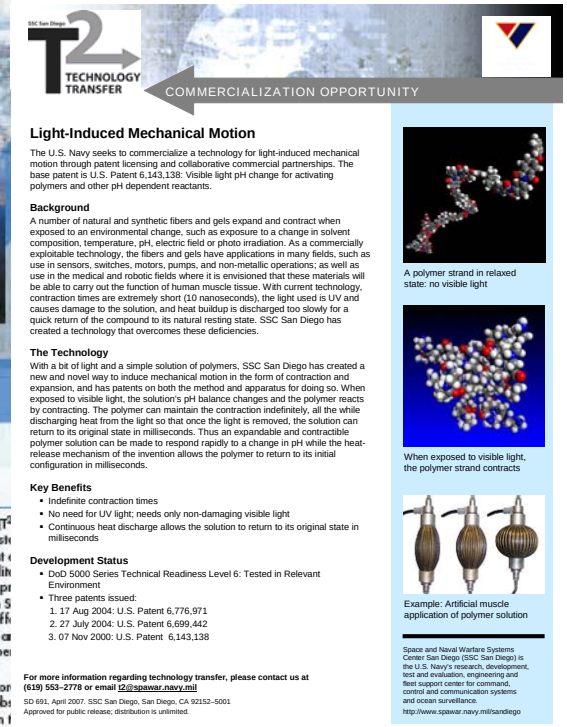
Technology Transfer: How

T2 Brochures

T2 TIP Sheets



T2 Web Site

http://enterprise.spawar.navy.mil/body.cfm?type=c&category=29&subcat=211

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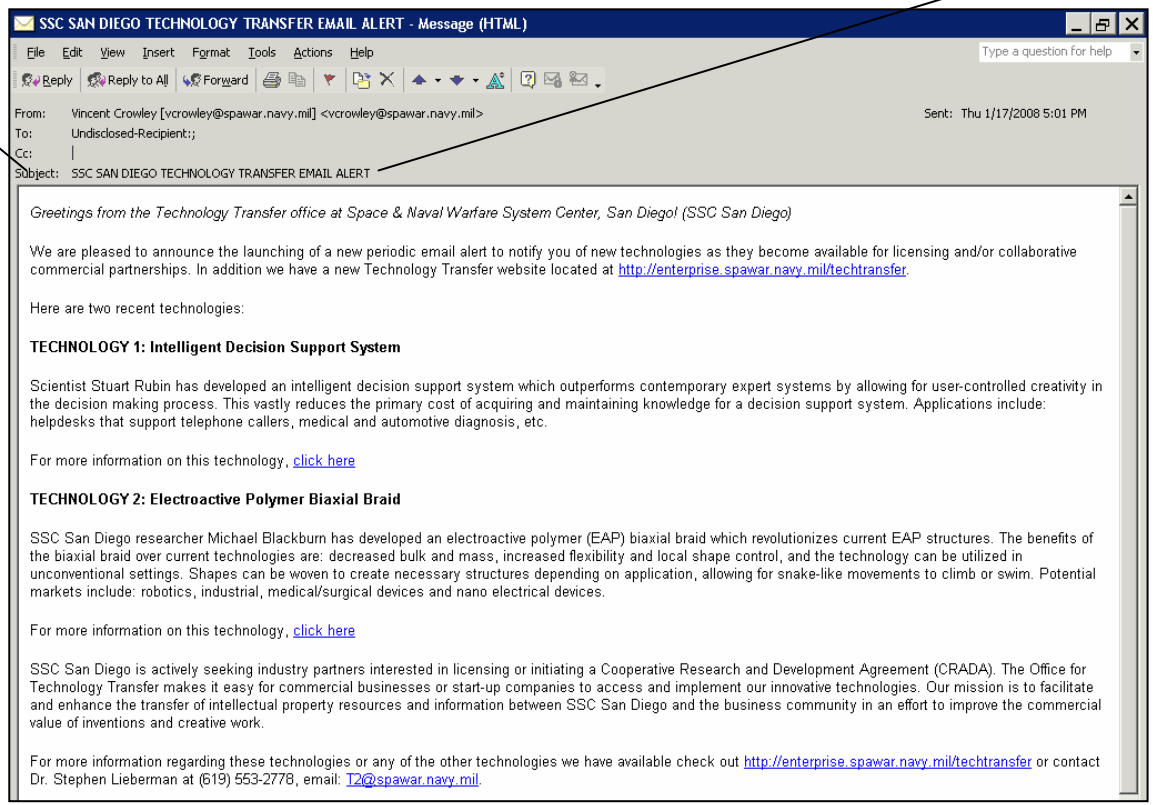
Technology Transfer: How
Marketing Cont.

Subject: SSC San Diego Technology Transfer Email Alerts



SSC SAN DIEGO TECHNOLOGY TRANSFER EMAIL ALERT - Message (HTML)

File Edit View Insert Format Tools Actions Help

Type a question for help

Reply | Reply to All | Forward

From: Vincent Crowley [vcrowley@spawar.navy.mil] <vcrowley@spawar.navy.mil>
Sent: Thu 1/17/2008 5:01 PM
To: Undisclosed-Recipient:;
Cc:
Subject: SSC SAN DIEGO TECHNOLOGY TRANSFER EMAIL ALERT

Greetings from the Technology Transfer office at Space & Naval Warfare System Center, San Diego! (SSC San Diego)

We are pleased to announce the launching of a new periodic email alert to notify you of new technologies as they become available for licensing and/or collaborative commercial partnerships. In addition we have a new Technology Transfer website located at http://enterprise.spawar.navy.mil/techtransfer.

Here are two recent technologies:

TECHNOLOGY 1: Intelligent Decision Support System

Scientist Stuart Rubin has developed an intelligent decision support system which outperforms contemporary expert systems by allowing for user-controlled creativity in the decision making process. This vastly reduces the primary cost of acquiring and maintaining knowledge for a decision support system. Applications include: helpdesks that support telephone callers, medical and automotive diagnosis, etc.

For more information on this technology, click here

TECHNOLOGY 2: Electroactive Polymer Biaxial Braid

SSC San Diego researcher Michael Blackburn has developed an electroactive polymer (EAP) biaxial braid which revolutionizes current EAP structures. The benefits of the biaxial braid over current technologies are: decreased bulk and mass, increased flexibility and local shape control, and the technology can be utilized in unconventional settings. Shapes can be woven to create necessary structures depending on application, allowing for snake-like movements to climb or swim. Potential markets include: robotics, industrial, medical/surgical devices and nano electrical devices.

For more information on this technology, click here

SSC San Diego is actively seeking industry partners interested in licensing or initiating a Cooperative Research and Development Agreement (CRADA). The Office for Technology Transfer makes it easy for commercial businesses or start-up companies to access and implement our innovative technologies. Our mission is to facilitate and enhance the transfer of intellectual property resources and information between SSC San Diego and the business community in an effort to improve the commercial value of inventions and creative work.

For more information regarding these technologies or any of the other technologies we have available check out http://enterprise.spawar.navy.mil/techtransfer or contact Dr. Stephen Lieberman at (619) 553-2778, email: T2@spawar.navy.mil.

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Technology Transfer: How
Marketing Cont.

- **Partner with Navy, DoD, Federal T2 organizations, Entrepreneurial groups, industry trade organizations, State, Local Economic Development Groups**

TechLink

ONR Science & Technology Office of Transition (Code 03T) Office of Naval Research

Federal Laboratory Consortium FLC For Technology Transfer

ccat Innovation for a Safer Nation

Connectory.com The California Network

DoD TechMatch

SDSIC Network

San Diego Software Industry Council

CONNECT

FirstLink

San Diego DEFCOMM A Defense and Space Technology Consortium

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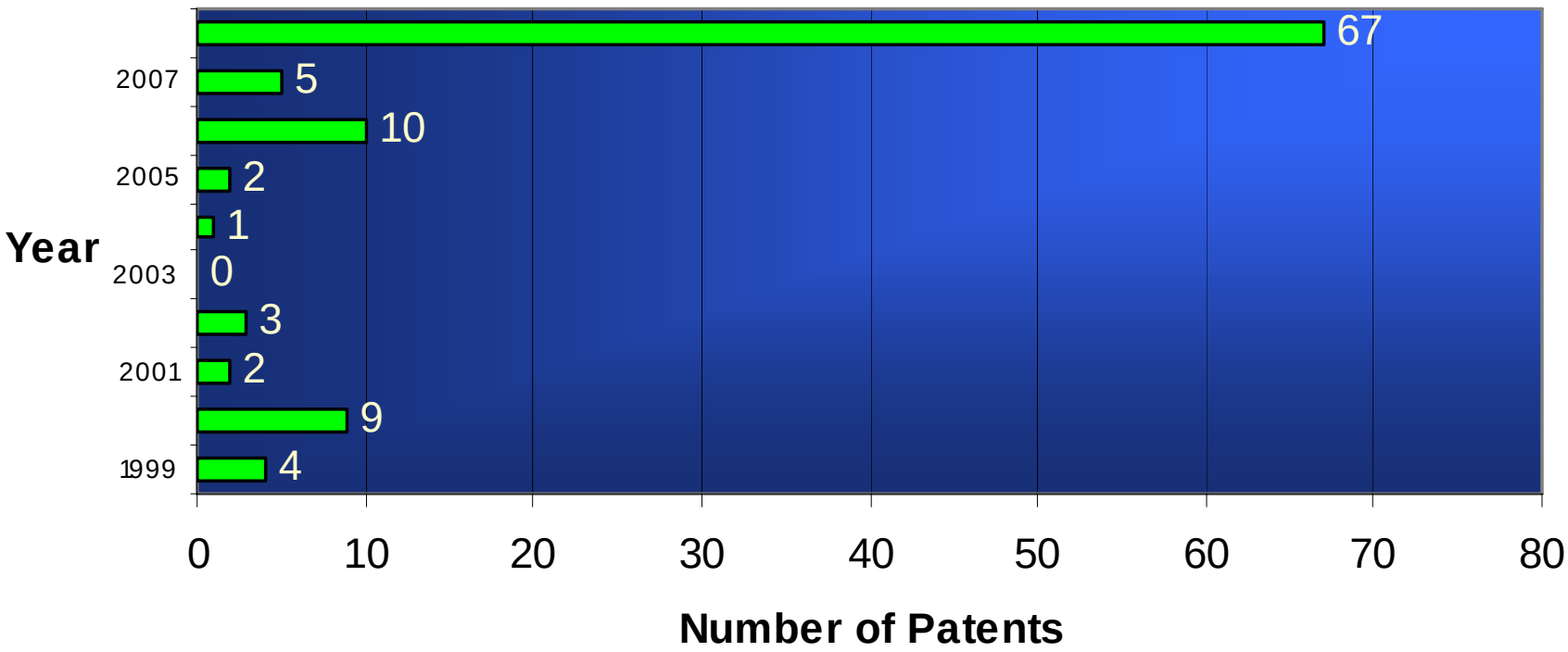
Number of Patents Licensed/Year



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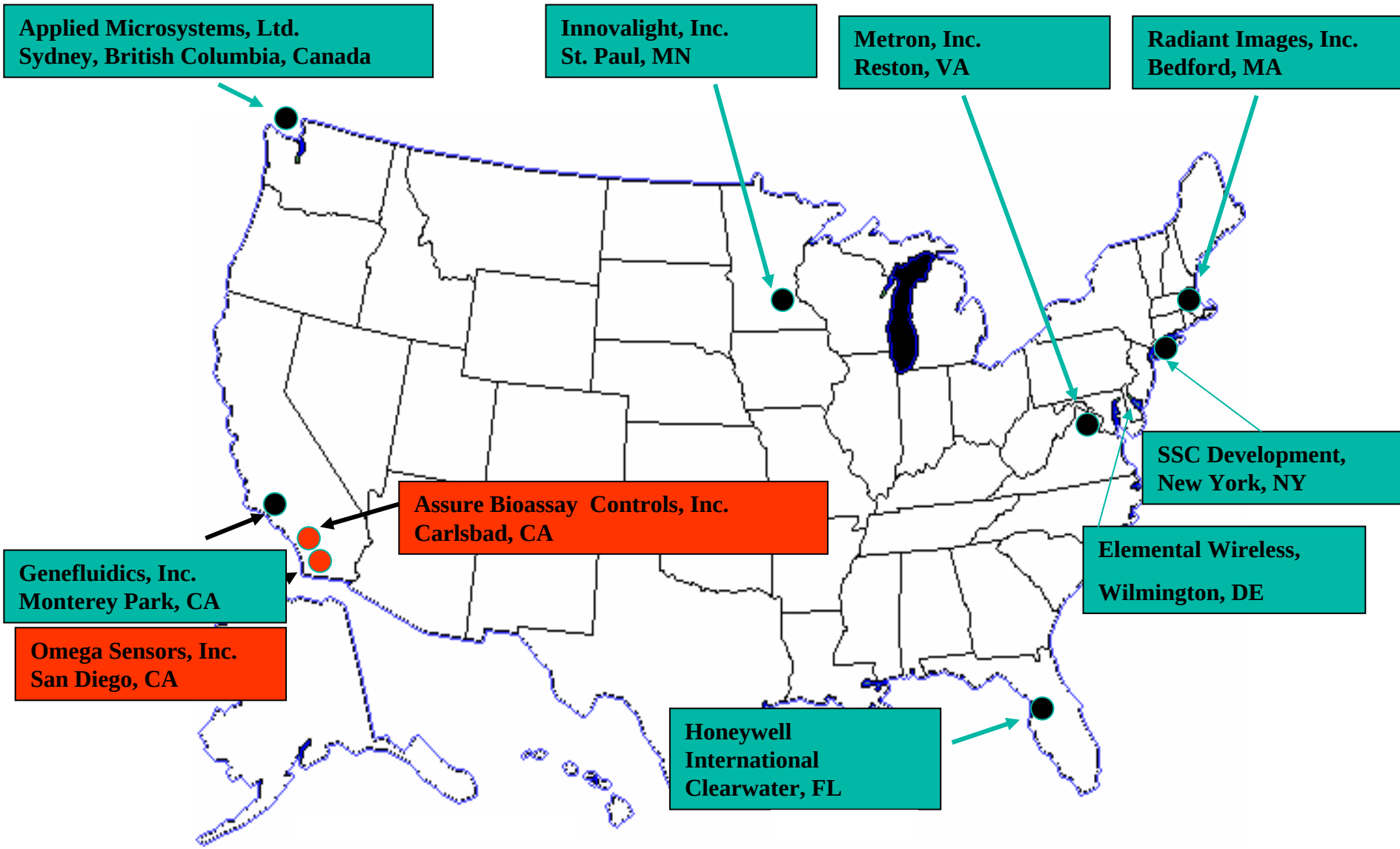
SSC San Diego Licensee Distribution



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Benefit to Small Business

- Gov't. developed technologies can:
  - Provide technology for new start-up companies
  - Provide enhancement to existing product lines
- Industry can partner with the govt. to gain access to facilities, equipment, and personnel in specific technical areas consistent with laboratory mission

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Benefit to the Navy

- Provides ROI to Navy's for investment in patent process
- Important path to move Navy innovations from lab to product
- Promotes economic development
  - » **Make US more competitive in global marketplace**

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Cooperative Research and Development Agreements (CRADA)

- What is a CRADA
  - **Legal agreement between a government R&D laboratory and interested partners**
  - **Allows partners to collaborate in mutually beneficial R&D in specific technical areas consistent with laboratory mission**
  - **Pre-determines all intellectual property rights**

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CRADA cont.

- Ground Rules
  - Partners can provide facilities, equipment, and personnel in support of CRADA
  - Government labs can enter into CRADAs with private sector, universities, and state and local governments
  - The non-government partner can provide funds to the government laboratory to perform tasks under the CRADA
  - The Government laboratory CANNOT provide funds to their partners

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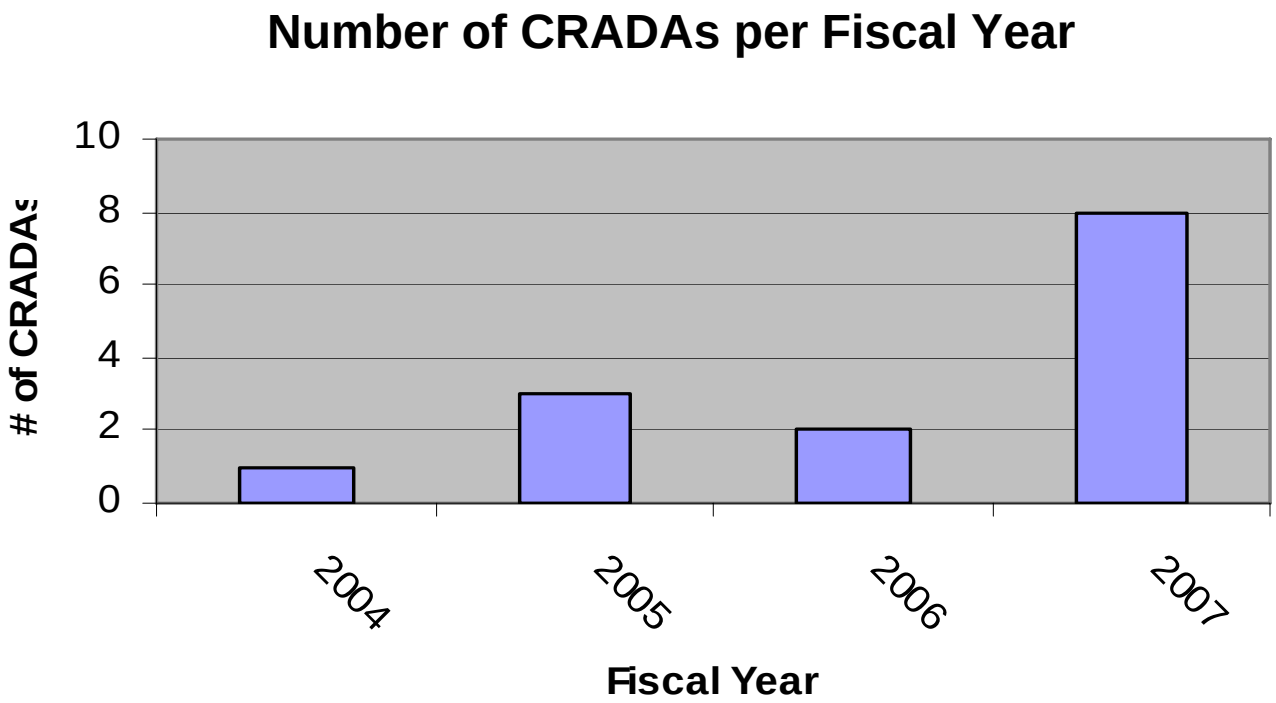
Recent CRADA Activity



Lumedyne Technologies

Mesa Robotics

XILINX

AAI

STAR Cryoelectronics

ASES Advanced Systems Engineering Group

GENERAL DYNAMICS Strength On Your Side

Secure Rugged Portable Systems

LOCKHEED MARTIN

assure CONTROLS

softmax

NORTEL

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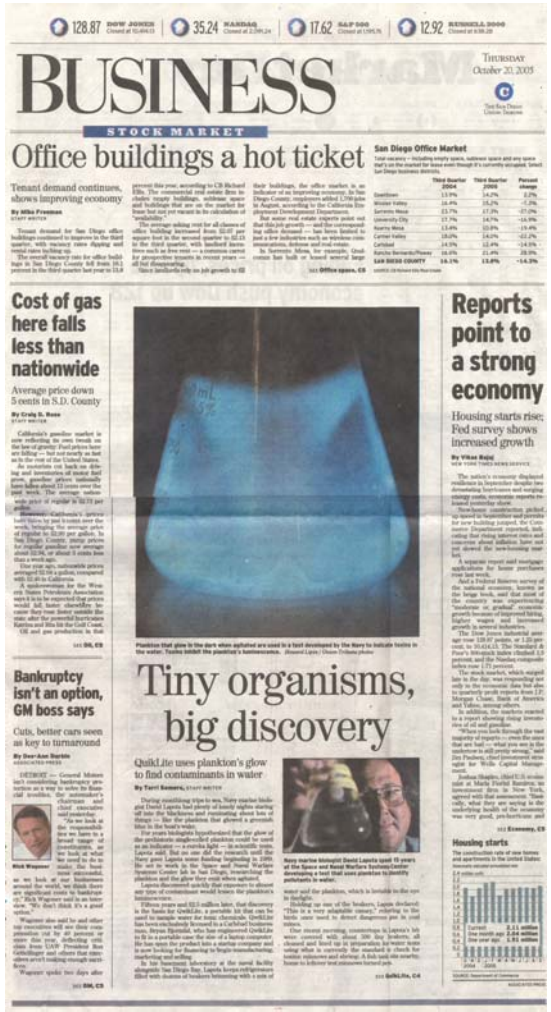
SSC San Diego Technologies in the News



128.87 DOW JONES | 35.24 NASDAQ | 17.62 S&P 500 | 12.92 RUSSELL 2000

BUSINESS

THURSDAY
October 20, 2005

STOCK MARKET

Office buildings a hot ticket

Tenant demand continues, shows improving economy

San Diego Office Market

Cost of gas here falls less than nationwide

Average price down 5 cents in S.D. County

Reports point to a strong economy

Housing starts rise; Fed survey shows increased growth

Bankruptcy isn't an option, GM boss says

Cuts, better cars seen as key to turnaround

Tiny organisms, big discovery

QuikLite uses plankton's glow to find contaminants in water

Housing starts

San Diego Union-Tribune
Page 1: Business Section

Brad Chisum, CEO Lumedyne technologies (formerly Omega Sensors Inc.) rings the opening bell on NASDAQ, August 2007

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Contact Info

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Email: T2@spawar.navy.mil

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SSC San Diego - Teaming with Industry

Raj Samuel

Science & Technology

raj.samuel@navy.mil

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SECOND PRIORITY : Add value to SSC San Diego.

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Teaming with Industry

- **Objective**
  - **Efficient transition of the DoD technologies to the warfighter**
- **Supported by**
  - **Congress, the Secretary of Defense, and the Secretary of the Navy**
- **Vehicles**
  - **Laws & policies to increase private sector access to defense-unique capabilities**
  - **10 U.S.C. §2539B … Sale of testing services outside the DoD**
  - **10 U.S.C. §2563 … Sale of Articles & services outside the DoD**

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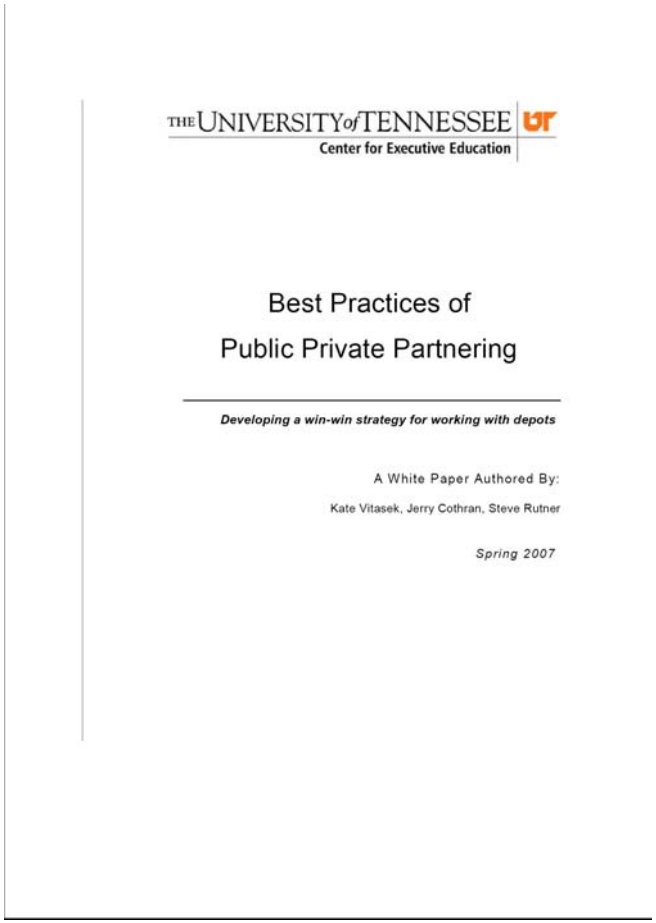
Advantages to the Industry Partner


THE UNIVERSITY of TENNESSEE
Center for Executive Education

Best Practices of
Public Private Partnering

Developing a win-win strategy for working with depots

A White Paper Authored By:

Kate Vitasek, Jerry Cothran, Steve Rutner

Spring 2007

- **Leverage Center's capabilities**
- **Access to knowledgeable workforce**
- **Use of existing facilities & equipment**
- **Minimize process flows**
- **Avoid investment in duplicate capabilities**
- **Compliance with Government regulations**
- **Increase profits**
- **Reputation associated with partnerships**

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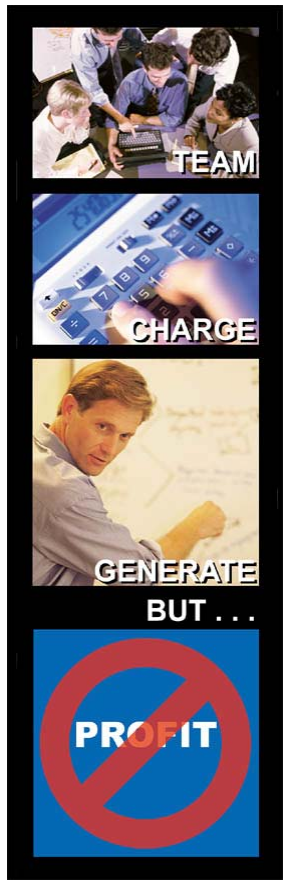
Working Capital Fund

Works like private industry

- **We team to do the work**
- **We charge our salaries & expenses to the project**
- **We generate overhead to pay operating expenses**

But we cannot make a profit



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10 U.S.C. §2539B

Authorizes the Secretary of Defense to allow the military departments to

(1) **sell, rent, lend, or give samples, drawings, and manufacturing or other information to any person or entity;**

(2) **sell, rent, or lend government equipment or materials to any person or entity**

(3) **make available to any person or entity, at an appropriate fee, the services of any government laboratory, center, range, or other testing facility for the testing of materials, equipment, models, computer software, and other items.**

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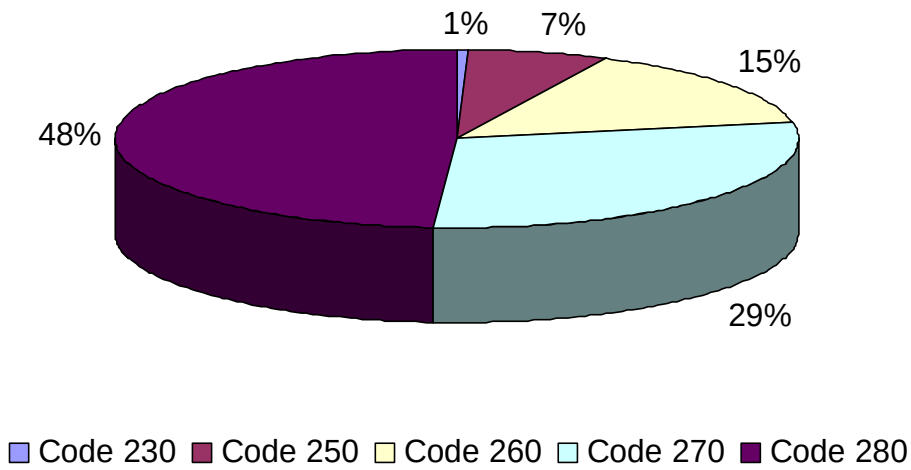
10 U.S.C. 2539B

74 executed FY03 thru FY07

Total value $4.1M



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10 U.S.C. 2539B

Deep Silence Engineering Lab & Test Facilities
Medium Weight Shock Test (MWST)
Acoustic Testing and Evaluation
Acoustic Evaluation of Hydrophones
TRANSDEC - Acoustic Evaluation of Hydrophones
Antenna and Radome Testing
Acoustic Evaluation of Hydrophones
TRANSDEC - Acoustic Evaluation of Hydrophones
Joint Tactical Radio System Test & Evaluation Lab
High Assurance Internet Protocol Encryptor (HAIPE)
HAIPE - Falcon III Manpack Radio (RF-300M-MP)
Deepwater National Security Cutter Antenna Test

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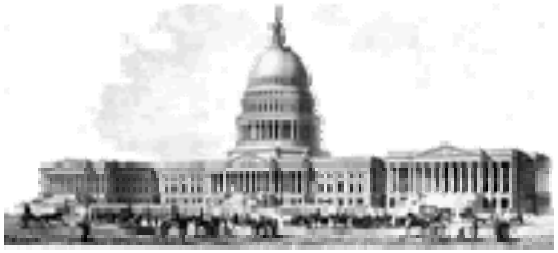
10 U.S.C. §2563



Authorizes the Secretary of Defense to sell *articles and services* that are manufactured or performed by any DoD working capital funded facility of the armed forces (e.g. *SSC San Diego*) to parties outside of the DOD (*Industry*).

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10 U.S.C. §2563 Statute Criteria

Sale of Articles & Services outside of DOD

10 USC 2563

No other U.S. Commercial Source

Indemnify U.S.

Burdened Rate

Fixed Price or Cost Reimbursable

≤ $1M

COMSPAWAR

> $1M

ASN RDA

Funds from Industry

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10 U.S.C. §2563 Elements

- **Non Availability Letter**
  - **Indicating that required articles or services are unavailable from a U.S. commercial source**
- **Sale of Articles or Services Agreement**
- **Statement of Work**
  - **Defining tasking, costs, period of performance, deliverables & reporting requirements**

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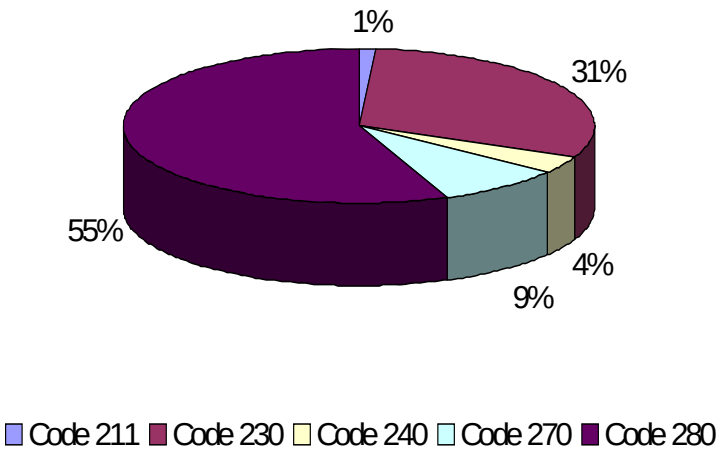
10 U.S.C. § 2563



24 executed FY03 through FY07

Total $25.5M

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10 U.S.C. § 2563

AS-4614 / URD Antennas
CLS for Minuteman Program
Data Link Gateway System
VLF / LF High Voltage Testing
AS-4614 & AS-4623 Antennas

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Sample of Partners

Agreements have involved both major corporations as well as small businesses.

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Conclusion

2539B and 2563 are excellent vehicles for Industry to acquire DoD technology / assets for transition

The agreements are easily adaptable

SSC San Diego

- **is the pre-eminent provider of C4ISR solutions**
- **has a successful track record with 2539B and 2563 agreements**
- **is actively engaged in Best In Class processes & Continuous Improvement**

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SSC San Diego - Teaming with Academia

Raj Samuel

Science & Technology

raj.samuel@navy.mil

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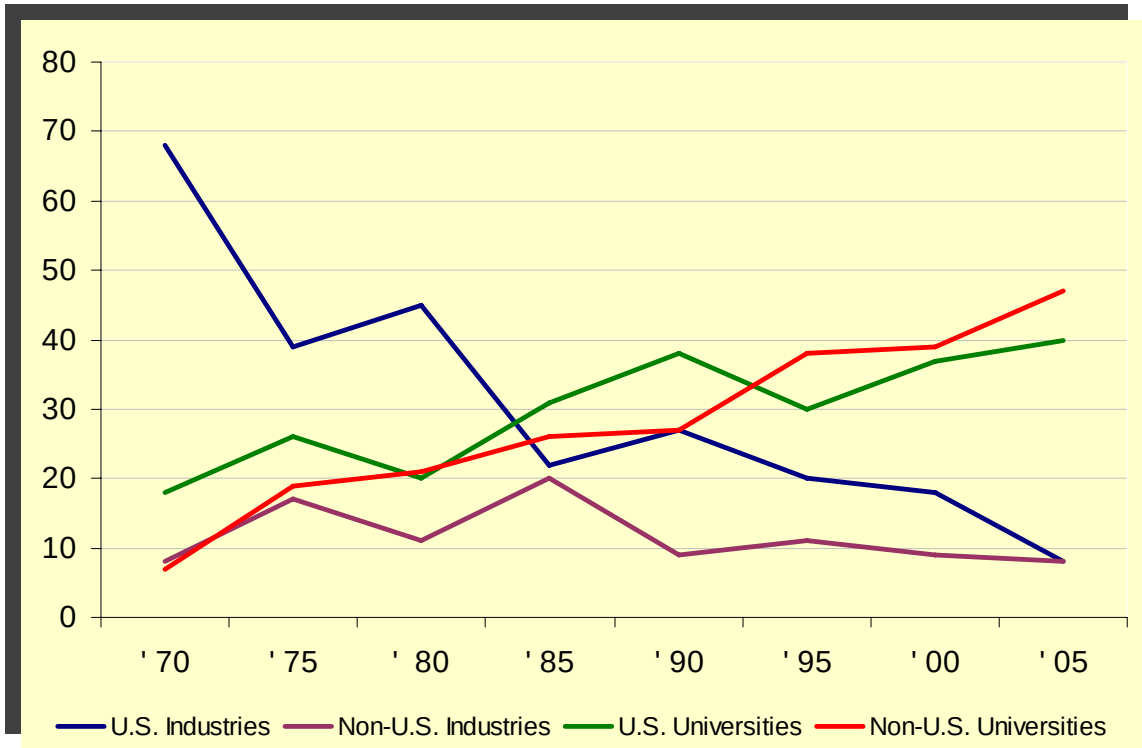
Shift in Comms Research….. *% of IEEE papers published*



Source: Bob Lucky, Telcordia / SAIC

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Cal ISI ..

California Institutes for Science & Innovation

- **Launched in 2000 to support multi disciplinary research in biomedicine, bioengineering, nano systems, telecommunications and information technology**
- **$400M funded by state of California … 2X matching funds by Institutes**
- **The 4 research centers operate as a partnership among the University, state government, and industry,**
  - Calit2 (**California Institute for Telecommunications and Information Technology)**
    - » UC San Diego & UC Irvine
  - QB3 **(California Institute for Quantitative Biomedical Research)**
    - » UC San Francisco, UC Berkeley & UC Santa Cruz;
  - CNSI **(California Nanosystems Institute)**
    - » UCLA & UC Santa Barbara
  - CITRIS **(the Center for Information Technology Research in the Interest of Society)**
    - » UC Berkeley, UC Davis, UC Merced, &UC Santa Cruz.

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Jacobs School of Engineering

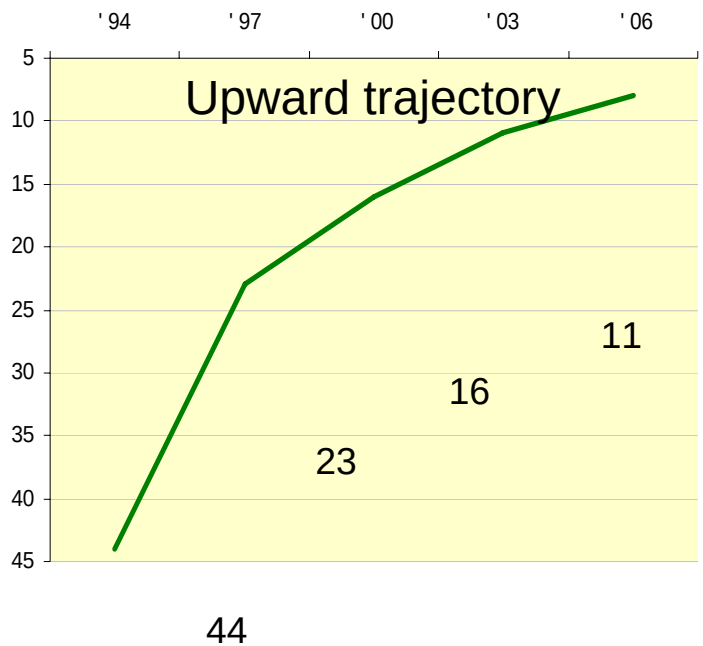
Youngest & fastest rising engineering school

 # 2 in total research $ per faculty

925K per faculty

 # 5 in the nation for federal R&D

$ 110M by Irwin Jacobs

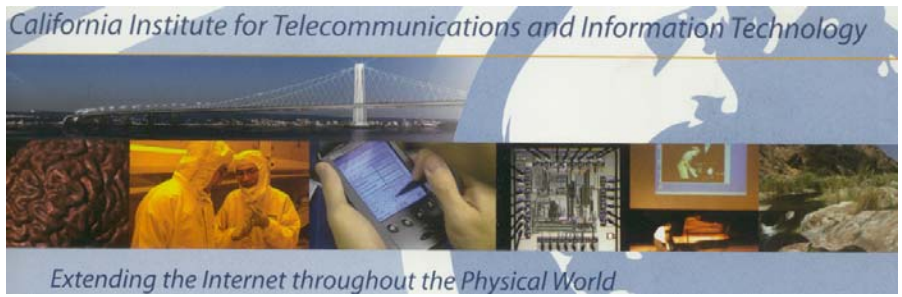


SSC – Calit2 Strategic Partnership

SSC San Diego … on Point and at the Center of C4ISR

- **Calit2 "Lives in the Future" by:**
  - **Building Systems of Emerging Disruptive Technologies**
  - **Integration of Technology Consumers and Producers**

- **To be the Nation's pre-eminent provider of integrated C4ISR solutions for warfighter decision superiority**



Provide collaborative and better solutions to the Fleet & Joint Warfighter

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SSC SD _ Calit2 Strategic Partnership

Strategic

DoD, DTRA etc Strategic Groups

Net-Centric Technology Objectives

DTRA Transformational Countermeasures Technology Initiative

JTRS JPEO

Seminars

Collaborative Proposals & Projects

Cooperative Agreement

Tactical

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Collaborative work

- **Co-operative Agreement**
  - **the Federal Grant and Cooperative Agreement Act of 1977**
  - **assistance agreements in which substantial involvement between the DoD and the recipient is anticipated**
  - **awards to universities to support research studies in subject areas consistent with the awarding agency's mission**

- **Agreement thru September 2009**

- **Graduate Seminar**
  - **CSE 290: Service Composition in Ultra-Large Scale Systems**
  - **Speakers (via VTC) from MIT, NCSU, NPS, SRI, SSC SD & Charleston, Vanderbilt & UCSD**
- **JTRS Project .. FY08**
  - **Increment 3 networks and radios**
- **DARPA .. BAA .. LANdroids Proposal ..Aug ’07**
- **ONR .. BEAMS Network Comms Gathering .. May ’07**
- **DARPA .. RFI .. Feb 07**
  - **Assurable Global Networking**

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Conclusion

SSC & Calit2 are developing key strategic partnership to

- **provide the best solutions to the warfighter**
- **grow workforce competencies**
- **develop a highly credentialed workforce**

Plan is to continue to nurture this partnership and collaborate with additional partners